ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

Permit Fact Sheet – Final

Permit Number: AKG002000

GENERAL PERMIT FOR EXCAVATION DEWATERING

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

Public Comment Period Start Date: 6/25/2019
Public Comment Period Expiration Date: 7/26/2019
Alaska Online Public Notice System: http://aws.state.ak.us/OnlinePublicNotices/

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Proposed issuance of an Alaska Pollutant Discharge Elimination System (APDES) general permit for:

EXCAVATION DEWATERING

The Alaska Department of Environmental Conservation (the Department or DEC) proposes to issue an APDES general permit (permit) for excavation dewatering discharges. The permit authorizes and sets conditions on the discharge of pollutants from authorized excavation dewatering discharges to waters of the United States (U.S.) or to land. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the authorized excavation dewatering discharges and outlines Best Management Practices (BMPs) to which they must adhere.

This fact sheet explains the nature of potential discharges from excavation dewatering and the development of the permit including:

- information on public comment, public hearing, and appeal procedures,
- a description of the industry
- a listing of effluent limitations, monitoring, and other conditions
- technical material supporting the conditions in the permit, and
- monitoring requirements in the permit.

Appeals Process

The Department has both an informal review process and a formal administrative appeal process for final APDES permit decisions. An informal review request must be delivered within 20 days after receiving the Department's decision to the Director of the Division of Water at the following address:

Director, Division of Water
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Interested persons can review 18 AAC 15.185 for the procedures and substantive requirements regarding a request for an informal Department review.

See http://dec.alaska.gov/commish/review-guidance/informal-reviews.aspx for information regarding informal reviews of Department decisions.

An adjudicatory hearing request must be delivered to the Commissioner of the Department within 30 days of the permit decision or a decision issued under the informal review process. An adjudicatory hearing will be conducted by an administrative law judge in the Office of Administrative Hearings within the Department of Administration. A written request for an adjudicatory hearing shall be delivered to the Commissioner at the following address:

Commissioner
Alaska Department of Environmental Conservation
P.O. Box 111800
Juneau, Alaska 99811

Location: 410 Willoughby Street, Juneau, Alaska

Interested persons can review 18 AAC 15.200 for the procedures and substantive requirements regarding a request for an adjudicatory hearing. See http://dec.alaska.gov/commish/review-guidance/adjudicatory-hearing-guidance.aspx for information regarding appeals of Department decisions.

Documents are Available

The permit, fact sheet, and related documents can be obtained by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below. The permit, fact sheet, and other information are located on the Department's Wastewater Discharge Authorization Program website: http://dec.alaska.gov/water/wastewater.aspx.

Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 555 Cordova Street Anchorage, AK 99501 (907) 269-6285	Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 610 University Avenue Fairbanks, AK 99709 (907) 451-2136
Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program P.O. Box 111800 Juneau, Alaska 99811 Location: 410 Willoughby Street, Juneau, Alaska (907) 465-5180	

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1.0 INTRODUCTION

1.1 Basis for Permit

Section 301(a) of the Clean Water Act (CWA) and Alaska Administrative Code (AAC) 18 AAC 83.015 provide that the discharge of pollutants to waters of the U.S. is unlawful except in accordance with an Alaska Pollutant Discharge Elimination System (APDES) permit. 18 AAC 72.500 requires the issuance of a permit to discharge nondomestic wastewater to land. Although such permits are usually issued to individual dischargers, Alaska Department of Environmental Conservation (DEC or the Department) regulations at 18 AAC 83.205, 18 AAC 72.900, and Alaska Statute (AS) 46.03.100(b)(2)also authorize the issuance of "general permits" to categories or subcategories of discharges when a number of point sources are:

- Located within the same geographic area and warrant similar pollution control measures;
- Involve the same or substantially similar types of operations;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;
- Require the same or similar monitoring requirements; and
- In the opinion of the Department, are more appropriately controlled under a general permit than under individual permits.

A violation of a condition applicable to a discharge to waters of the U.S. contained in a general permit constitutes a violation of the CWA and the permittee is accordingly subject to the penalties specified in Section 309 of the CWA.

1.2 Permit Issuance History

This is the second issuance of an excavation dewatering APDES permit. Prior to the first APDES permit, excavation dewatering discharge activities were permitted under a state wastewater discharge permit developed in accordance to AS 46.03.100 to permit both discharges to land and water. Excavation dewatering discharges in Alaska have been regulated by the Department since 1998 with the issuance of the first state general permit (Permit # 9940-DB002). The permit initially issued in 1998 was reissued in 2004 and then again in 2009 prior to the Department's assuming authority to administer the National Pollutant Discharge Elimination System (NPDES) program for these types of nondomestic discharges on October 31, 2009. The most current permit authorizing these discharges is the Excavation Dewatering General Permit (Permit # AKG002000) that is due to expire on July 31, 2019.

The APDES Program (18 AAC 83) regulates point source discharges to waters of the U.S., whereas discharges to land are regulated under the authority of 18 AAC 72.500. The Department's statutory authority for issuing permits under 18 AAC 83 and 18 AAC 72 comes from AS 46.03.100. In order to meet the requirements of 18 AAC 83 to appropriately regulate surface water discharges, as well as 18 AAC 72 to appropriately regulate land discharges, both discharges to waters of the U.S. and land are authorized under this general permit.

Between August 1, 2014 to April 30, 2019, 147 excavation dewatering discharges were authorized under the excavation dewatering general permit. Excavation dewatering discharges were primarily related to trench dewatering for the installation of utilities and dewatering for the construction of building footers. Due to the presence of permafrost, shallow bedrock, and poorly drained soils, a large portion of the state has a relatively high water table that requires dewatering to facilitate construction activity. The dewatering general permit authorized discharges of accumulated water within an excavation or work area to facilitate construction.

All discharges to surface waters authorized under the current and past dewatering state permits were required to meet water quality-based effluent limits (WQBEL) equal to applicable Alaska water quality criteria, which are codified in 18 AAC 70, at the point of discharge. Effluent limits and monitoring

permit requirements consisted of monitoring for pH, settleable solids, turbidity, Total Aqueous Hydrocarbons (TAqH), Total Aromatic Hydrocarbons (TAH), and total iron. In addition to the hydrocarbon analysis, all surface water discharges were prohibited from discharging any water with a visible sheen.

Land discharges have historically been authorized to areas which were suitable for infiltration with no off site discharges. Permit monitoring requirements for land discharges consisted of visual monitoring for sheen, turbidity, and erosional effects. Operators were required to implement basic erosion and sediment control best management practices (BMPs) to prevent erosion and sediment deposition. All prior discharges were authorized by site-specific discharge authorizations that often included specific BMPs.

Due to the large presence of oil and natural gas exploration on the North Slope, a specific APDES general permit was developed to cover the various discharges associated with oil and gas facilities located on the North Slope Borough. The current version of the permit (Permit # AKG332000) authorizes a construction dewatering discharge to facilitate construction in the North Slope, which contains permafrost and shallow water tables. AKG332000 requires effluent monitoring to meet all the same water quality criteria that are proposed in the 2019 Excavation Dewatering general permit. The 2019 Excavation Dewatering general permit is necessary to cover those same types of dewatering operations elsewhere in Alaska, and applicants who have coverage with AKG332000 do not need to seek dual permit coverage.

In addition to the North Slope Oil and Gas Exploration general permit, the state has developed a statewide oil and gas pipelines general permit (AKG320000) that covers hydrostatic testing, excavation dewatering, and other related discharges necessary for the operation and maintenance of hydrocarbon transport pipelines. The 2019 Excavation Dewatering general permit authorizes excavation dewatering discharges that do not meet the eligibility criteria of either the North Slope general permit or the statewide oil and gas pipelines general permit and again, applicants do not need to seek dual permit coverage. The only situation where dual permit coverage would exist is for construction projects covered under the Construction General Permit (AKR100000) that have dewatering discharges from sites located within 1,500 feet of an "DEC identified contaminated site or groundwater plume of concern[1]" (See Section 3.1.1 for more information).

1.3 Summary of Significant Changes to the 2019 Excavation Dewatering General Permit

Part 2.0 Authorization, Notice of Intent:

- Notice of Intent (NOI) Submission Deadlines (Permit Part 2.4). Permitted ongoing projects from the prior general permit must submit a complete, accurate, and updated NOI and BMP plan within 90 calendar days of the effective permit. If the permittee is eligible to submit a Notice of Termination (NOT) (e.g., dewatering activities are completed) before the 90th day, a new NOI is not required to be submitted provided a NOT is submitted within the 90 calendar days after the effective date of this permit.
- Part 2.2.7 - Inclusion of an option to file for a mixing zone request for turbidity and residues with the Notice of Intent

Part 3.0 Compliance with Standards and Limits - Requirements for all Projects

- Part 3.1.6 - Inclusion of notification and approval from Division of Water staff.

[1] A contaminated site or groundwater plume with an "Active" or "Cleanup Complete-Institutional Controls" status identified by DEC Contaminated Sites Program. For assistance in locating mapped contaminated sites and listing of groundwater plumes, see http://dec.alaska.gov/water/wastewater/stormwater/dewater-hydrostatic/.

Part 5.0 Limitations, Inspections, and Monitoring Requirements: Surface Water Discharges, inclusion of the following:

- Table 4 – Effluent Limits and Monitoring Requirements for Discharges to waters of the U.S.
    - Mixing zone limits for freshwater and marine.
- Part 5.2.14 Mixing Zone requirements.
- Part 5.2.15 Quality Assurance Project Plan requirements.

Part 6.2 Discharge Monitoring Report (DMR)

- Part 6.2.1 - DMRs to be submitted when filing a Notice of Termination or if project duration is longer than one year.

2.0 DESCRIPTION OF INDUSTRY AND RECEIVING WATERS

2.1 Industry and Process Summary

Excavation dewatering is critical in Alaska to support the construction industry. New buried utilities across Alaska are often installed several feet deep below the frost line, which can place them beneath the surface of the water table. A large portion of the state contains permafrost that forms an impermeable layer for water infiltration and will cause elevated water tables. Those areas that do not contain permafrost are often poorly drained due to the predominance of silt, which can result in elevated water tables or saturated soils. In order to facilitate construction, the subsurface water is removed from the excavation areas either through pumps placed within the excavation or through employing nearby dewatering wells.

The dewatering process normally consists of placing a suction hose into a sump or low area of an excavation that is connected to a large pump to remove any accumulated water. This process is normally used for excavations in relatively impermeable soils that are just below the surface of the water table with an aquifer recharge rate that is less than the pumping discharge rate. The pumped water is typically discharged to the land utilizing appropriate temporary BMPs or to surface water through sediment filters. The BMPs commonly used are dewatering bags to filter the water, temporary settling basins, weir tanks, rock check dams, and other similar devices, which can reduce the discharge velocity and provide an area for sediment deposition and ultimately removal. Another form of dewatering for excavations to depths several feet below the water table with rapid aquifer recharge is the installation of perimeter dewatering wells. Dewatering wells are temporarily drilled wells placed within close proximity and in the same aquifer of the planned excavations where either a single well pump or a series of wells can be used to induce a localized lowering of the surface of the water table.

2.2 Potential Industry Impacts on Water Quality

The main pollutant of concern for any excavation dewatering discharge is sediment, which can normally be filtered directly through a sediment filter or weir tank for those direct discharges to surface water. Sediment filters or Weir tanks can remove a large percentage of the total suspended solids (i.e., sediment) if discharge rates are within the limits of the treatment unit. Discharges to land are typically managed with temporary BMPs, which reduce discharge velocity to mitigate erosion and provide large settling areas.

Dewatering discharges that are in close proximity to “DEC identified contaminated sites” have the potential to be impacted by the contaminants of concern identified by the DEC Contaminated Sites Program. The contaminants of concern are generally petroleum hydrocarbons. Excavation dewatering conducted within close proximity to identified contaminated sites have historically been authorized via site-specific discharge authorizations that often include additional monitoring requirements specified by

the Contaminated Sites Program. Discharges with residual petroleum products are normally treated with oil absorbent pads or surface skimmers, and in more severe cases, a temporary granular activated carbon filter treatment system. WQBELs for TAH and TAqH set equal to their applicable criteria are established in the permit to ensure maintenance and protection of water body uses.

2.3 Receiving Waters

2.3.1 Water Quality Standards

Regulations in 18 AAC 70 require that the conditions in permits ensure compliance with the Alaska WQS. The state's WQS are composed of use classifications, numeric and/or narrative water quality criteria, and an Antidegradation Policy. The use classification system describes the designated and existing uses that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The Antidegradation Policy ensures that the beneficial uses and existing water quality are maintained.

The protection of surface water occurs primarily through the development, adoption, and implementation of Alaska Water Quality Standards (WQS) and the use of WQS in APDES permits. The WQS designate specific uses that water quality must be maintained and protected. Alaska WQS designate seven uses for fresh waters (drinking water; agriculture; aquaculture; industrial; contact recreation; non-contact recreation; and growth and propagation of fish, shellfish, other aquatic life, and wildlife) and seven uses for marine waters (aquaculture; seafood processing; industrial; contact recreation; non-contact recreation; growth and propagation of fish, shellfish, other aquatic life, and wildlife; and harvesting raw mullusks or other raw aquatic life for human consumption).

Existing uses are "those uses actually attained in a water body on or after November 28, 1975, whether or not they are included in the WQS [40 CFR § 131.3(e)]." Designated uses are "those uses specified in water quality standards for each waterbody or segment whether or not they are being attained [40 CFR § 131.3(f)]." Waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230 as listed under 18 AAC 70.230(e). Some waterbodies in Alaska can also have site-specific water quality criterion per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b).

2.3.2 Impaired Surface Waters

The CWA mandates that states monitor and report on the quality of their waters. Section 305(b) requires that the quality of all water bodies be characterized, and Section 303(d) requires that states list any water bodies that do not meet WQS. DEC develops and publishes an integrated water quality assessment report every two years as required by the CWA. The most recent report is the *Alaska's Final 2014/2016 Integrated Water Quality Monitoring and Assessment Report* (DEC, 2018).

A permittee can access DEC's Integrated Water Quality Monitoring and Assessment Report and the Alaska's Section 303(d) List of Impaired Waterbodies at http://dec.alaska.gov/water/water-quality/impaired-waters.

Waters that do not meet the numeric and/or narrative criteria for their use designation(s) are listed as impaired, in compliance with the CWA and state rules. DEC currently lists approximately 59 waters as impaired, with about 14 listed as candidates for development of a Total Maximum Daily Load (TMDL) (DEC, 2018). TMDLs are a calculation of the maximum amount of a pollutant that a water body can receive, which is referred to as a pollutant allocation, and still meet WQS. Section 303(d) of the CWA requires states to identify waters that do not meet applicable WQS applying technology-based controls alone. The Department identifies and prioritizes the water quality-limited waters and then develops TMDLs necessary to achieve the applicable WQS.

3.0 PERMIT CONDITIONS

3.1 Coverage under the Permit

3.1.1 Authorized Discharges

Permit Part 1.3 outlines operations that are authorized under the permit. The authorized operations consist of excavation dewatering discharges to waters of the U.S. or land associated with construction activity where pumps, sumps, etc. are used within or near excavation areas to remove accumulated groundwater, surface water or storm water. Dewatering discharges eligible for coverage under this permit would also consist of groundwater dewatering through the use of temporary dewatering wells, vacuum well points, eductors, etc. to temporarily lower the surface of a water table to support a construction activity.

The permit provides additional permitting requirements for excavation dewatering activities that occur within 1,500 feet of a "DEC identified contaminated site" or "contaminated groundwater plume". Excavation dewatering activities that are covered under the APDES Construction General Permit (CGP, AKR100000) that occur within 1,500 feet of an "Active DEC identified contaminated site" or "contaminated groundwater plume" require additional permit authorization under the permit due to the potential for additional pollutants of concern in the discharge. The additional permitting authorization under the permit will assure that dewatering activities conducted at a construction project covered under the CGP do not impact any known contaminant plumes. This permit authorization is required since the CGP only authorizes discharges of uncontaminated groundwater from dewatering activities managed through BMPs. This is the only situation where permit coverage under two permits that authorize excavation dewatering discharges will be required on the same project. A Notice of Intent (NOI) application submittal requirement flow chart is provided in Appendix A of this fact sheet to provide clarification as to how dewatering discharges would be properly permitted either under the Excavation Dewatering permit or the CGP.

3.1.2 Exclusions

Permit Part 1.4 outlines discharges that are not authorized under the permit. Discharges that are not authorized must seek coverage under another applicable APDES permit or apply for and obtain an APDES individual permit. The permit is to be used for eligible excavation dewatering discharges associated with construction activities. The permit only authorizes intermittent or temporary discharges that contain low pollutant concentrations that present a minimal threat to the environment or public health. Permit Part 1.5 describes conditions that would justify the requirement to issue an individual permit.

Construction dewatering associated with oil and gas facilities located on the North Slope Borough are eligible for coverage under permit AKG332000. The statewide hydrocarbon transport general permit AKG320000 covers hydrostatic testing, dewatering, and other operational and maintenance activity discharges associated with the operation of hydrocarbon transport pipelines. As previously mentioned in Section 1.2, dual permit coverage for these type of discharges is not needed.

3.1.3 Individual Permit

APDES regulations outline three situations where facilities that are eligible for coverage under a general permit or obtained coverage under a general permit will be required to seek coverage under an individual permit (18 AAC 83.215). First, the Department may require any person authorized by a general permit to apply for and obtain an individual permit, or any interested person may petition the Department to take this action. Second, an applicant may request to be excluded from the coverage of the general permit by applying for an individual permit. Third, a permittee who is already authorized by an individual permit may request general permit coverage.

Permit Part 1.5 also outlines situations when the Department may require an individual permit, based upon the agency's request, and describes potential additional individual permit stipulations. Due to the temporary nature of excavation dewatering, and the limited risk posed to the environment from the innocuous discharges, the most logical permitting approach is coverage under a general permit. Discharges that are long-term or continuous and not associated with eligible excavation dewatering that support a construction activity may require coverage under an individual permit.

3.2 Authorization under the Excavation Dewatering General Permit

3.2.1 How to Obtain Authorization

An NOI to be covered under the general permit is required for entities that are conducting excavation dewatering activities that result in discharges authorized under Permit Part 1.3. Authorization is granted for discharges to either waters of the U.S. or land that are located within 1,500 feet of an "DEC-identified contaminated site"; discharges within 1,500 feet of a "DEC-identified contaminated groundwater plume"; or discharges to waters of the U.S. greater than 1,500 feet from an "DEC identified contaminated site or groundwater plume" and are not eligible for coverage under the CGP. The NOI notification requirements are outlined in Permit Part 2.2 as required per 18 AAC 83.210(b).

Mixing Zone Request. New for the 2019 Permit, for limited instances where it may not be possible to achieve water quality criteria for turbidity and residues prior to discharge, applicants may seek a mixing zone for turbidity and residues prior to discharge. The Department will based on the mixing zone request submitted with the NOI, make a determination as to whether a 500-foot mixing zone is appropriate at the proposed discharge location. See Section 3.6 for further discussion of mixing zone requirements.

Automatic Authorization. Discharges to land from dewatering activities located greater than 1,500 feet from a "DEC-identified contaminated site or groundwater plume" will have less potential to affect the contaminate plume. These discharges to land will be authorized through the implementation of BMPs (Part 4.0) and additional requirements listed in Permit Parts 5.1 and 6.0 and will not require formal NOI submittal.

3.2.2 How to Submit an NOI

Permit Part 2.2 requires permittees to either use DEC's electronic NOI system (accessible at http://dec.alaska.gov/water/wastewater/stormwater/apdesenoi/) or use a paper form (included at this website) and then submit that paper form to the appropriate address (See Permit Appendix A Part 1.1).

DEC encourages operators to submit an NOI via the electronic filing system and emphasizes that filing via the electronic filing system will be a quicker way to obtain permit coverage, because the system will automatically process the information, disallow incomplete submissions, and flag certain entries as possibly incorrect.

3.2.3 Submission Timeframes

Timeframes for submitting discharge authorizations are contained in Table 2 of the permit, which identifies the category of discharger, NOI submission deadline, and NOI submittal requirements.

3.2.4 Date of Authorization to Begin Discharge

A permittee is authorized to discharge excavation dewatering under the terms and conditions of the permit upon the date specified in the issuance of the authorization letter. A copy of the authorization letter is posted on DEC's website http://dec.alaska.gov/Applications/Water/WaterPermitSearch/search.aspx.

During the NOI review period, DEC may notify the permittee that additional action must be taken before discharge authorization is obtained, based on concerns regarding eligibility as described in Part 1.2. For non-electronic NOI (eNOI) submissions, DEC cannot guarantee the paper NOI will be

processed as quickly as the eNOI. DEC strongly encourages applicants to use the eNOI system to expedite processing. DEC will attempt to contact the NOI submitter directly with information about delays as soon as possible (by telephone, fax, or email), but it is the applicant's responsibility to ensure that authorization has been granted.

3.2.5 **Continuation of Expired General Permit**

If the permit is not reissued prior to the expiration date, it will be administratively continued in accordance with 18 AAC 83.155(c) and remain in force and effect. A permittee remains covered under the administratively continued permit, so long as prior to the expiration date, the permittee complies with the requirements of 18 AAC 83.155(c)(1). A permittee granted permit coverage prior to the expiration date will automatically be covered under the administratively continued permit until the earliest of the following:

- Reissuance or replacement of the permit, at which time the permittee must comply with the conditions of the new permit, as it applies to ongoing projects, to maintain authorization to discharge;
- Submittal of a NOT;
- Issuance of an individual permit for the project's discharges; or
- A formal permit decision by DEC to not reissue the general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.

3.2.6 **NOI Submission Deadlines**

New Projects the operator must submit a complete and accurate NOI a minimum of 30-days prior to the date the discharge is to commence consistent with Part 2.2 NOI requirements.

Permitted ongoing projects from the prior general permit must submit a complete, accurate, and updated NOI and BMP plan within 90 calendar days of the effective permit. If the permittee is eligible to submit a NOT (e.g., dewatering activities are completed) before the 90th day, a new NOI is not required to be submitted provided a NOT is submitted within the 90 calendar days after the effective date of this permit.

3.2.7 **Submittal of a Modification to Original NOI**

A permittee must file an NOI modification form to DEC to update or correct the following information on the original NOI within 30 calendar days of the change:

- Owner/Operator address and contact information
- Site information, or
- Estimated start or end dates.

No general permit authorization fee is required when submitting an NOI modification.

3.3 **Compliance with Standards and Limits**

3.3.1 **Basis for Permit Effluent Limits**

The CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are established by EPA and are adopted by reference in regulation by DEC. TBELs are set according to the level of treatment that is achievable using available technology to protect water quality. A WQBEL is designed to ensure that the WQS for a water body is met. WQBELs may be more stringent than TBELs. EPA has not promulgated TBELs for excavation dewatering surface water discharges.

WQBELs included in APDES permits are derived from WQS. APDES regulation 18 AAC 83.435(a)(1) requires that permits include WQBELs that can "achieve water quality standards established under CWA §303, including state narrative criteria for water quality."

No TBELs exist for these specific types of discharges; therefore, the WQBELs set equal to applicable water quality criteria for pollutants that are believed to be present will apply to all surface water discharges. Land discharges will be managed through BMPs, which are the best available demonstrated control technology to minimize pollutant discharges.

3.3.2 Land Discharging Operations

The general permit authorizes land discharges of excavation dewatering through the use of BMPs described in Permit Parts 4 and 5.1. The Department has applied the narrative oil and grease criterion that all discharges shall be free of an oil sheen. Through the prohibition of an oil sheen discharge and the implementation of basic erosion and sediment BMPs at the point of discharge, all land discharges will be protective of the environment.

The BMPs include discharging into an area with permeable soils that allow complete infiltration to prevent a surface water discharge as well as erosion controls at the point of discharge. Through the use of appropriate erosion and sediment controls in addition to BMPs (i.e., settling basins, filter bags, or other similar filtering mechanisms), the land discharges will minimize environmental impact.

3.3.3 Surface Water Discharging Operations

For the purpose of the permit, excavation dewatering discharges primarily consist of water pumped from shallow excavations or dewatering wells to lower the surface of the water table in the excavated area. The water will consist primarily of uncontaminated groundwater, with exception to dewatering that occurs within 1,500 feet of a "DEC-identified contaminated site or groundwater plume". The permit allows the Department to specify additional monitoring and sampling requirements in the discharge authorization for activities near contaminated sites where the standard permit conditions may not provide sufficient protection. Operator's excavation dewatering discharges near contaminated sites may be required to sample for specific pollutants of concern and meet applicable water quality criteria prior to discharge. Excavation dewatering discharges may contain total suspended solids and petroleum hydrocarbons, so monitoring for pH, settleable solids, turbidity, TAqH, and TAH will be necessary to ensure water quality criteria are met. Some discharges may require treatment to achieve the water quality criteria or implementation of basic BMPs described in Permit Parts 3 and 4.

3.3.3.1 Water Quality-Based Effluent Limits

DEC concluded, based on application of the WQS and review of available sampling data, that pH, settleable solids, TAqH, TAH, and turbidity must be limited in order to meet the State's WQS for surface water discharges.

3.3.3.1.1 pH

Alaska WQS at 18 AAC 70.020(b)(6)(A)(iii) and 18 AAC 70.020(b)(18)(C) state that the pH water quality criteria for the growth and propagation of fish, shellfish, other aquatic life, and wildlife for both fresh and marine water may not be less than 6.5 or greater than 8.5 standard units.

3.3.3.1.2 Settleable Solids

Alaska WQS at 18 AAC 70.020(b)(9)(A)(i) and 18 AAC 70.020(b)(21)(B) state that the sediment water quality criteria for the fresh water drinking water supply and marine water contact recreation shall have no measureable increase in concentration of settleable solids above natural conditions, as measured by the volumetric Imhoff cone method. The no measurable increase in settleable solids translates to a WQBEL of 0.2 milliliters per Liter (ml/L) above natural conditions.

3.3.3.1.3 TAqH – Total Aqueous Hydrocarbons

Alaska WQS at 18 AAC 70.020(b)(5)(A)(ii) and 18 AAC 70.020(b)(17)(A)(ii) state that the petroleum hydrocarbons water quality criterion for the fresh water agriculture, including irrigation and stock watering supply use and marine water seafood processing water supply use may not cause a visible sheen upon the surface of the water.

Alaska WQS at 18 AAC 70.020(b)(5)(A)(iii) and 18 AAC 70.020(b)(17)(A)(i) state that the petroleum hydrocarbon water quality criterion for the fresh and marine water aquaculture water supply use shall not have a TAqH concentration in the water column to exceed 15 microliters per Liter (µg/L). The permit does not authorize a mixing zone for TAqH; therefore, the WQBEL for TAqH will be assigned the WQC of 15 µg/L to be met at the point of discharge. The analytical measurement for TAqH consists of the sum of the monoaromatic hydrocarbons (TAH) plus the sum of the polynuclear aromatic hydrocarbons listed in EPA method 610 or 625. Monitoring for TAqH if a visual sheen is observed will provide assurance that the dewatering process will not discharge any TAqH above the WQC into the receiving waterbody.

3.3.3.1.4 TAH – Total Aromatic Hydrocarbons

Alaska WQS at 18 AAC 70.020(b)(5)(A)(ii) and 18 AAC 70.020(b)(17)(A)(ii) state that the petroleum hydrocarbon WQC for the fresh water agriculture, including irrigation and stock watering supply use and marine water seafood processing water supply use may not cause a visible sheen upon the surface of the water.

Alaska WQS at 18 AAC 70.020(b)(5)(A)(iii) and 18 AAC 70.020(b)(17)(A)(i) state that the petroleum hydrocarbon water quality criteria for the fresh and marine water aquaculture water supply use shall not have a TAH concentration in the water column to exceed 10 µg/L. The permit does not authorize a mixing zone for TAH; therefore, the WQBEL for TAH will be assigned the WQC of 10 µg/L to be met at the point of discharge. The analytical measurement for TAH consists of summing the concentration of the monoaromatic hydrocarbons which include benzene, chlorobenzene, toluene, ethylbenzene, 1-3, 1-4, and 1-2 di-chlorobenzenes and total xylenes (sum of m, p, and o xylene). Monitoring for TAH if a visual sheen is observed will provide assurance that the dewatering process will not discharge any TAH above the water quality criteria into the receiving water body.

3.3.3.1.5 Turbidity

Alaska WQS at 18 AAC 70.020(b)(12)(B)(i) states that the turbidity WQC for the fresh water contact recreation use may not exceed 5 NTUs above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than a 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU. May not exceed 5 NTU above natural turbidity for all lake waters.

Alaska WQS at 18 AAC 70.020(b)(24)(A)(i) states that the turbidity WQC for the marine water aquaculture water supply shall not exceed 25 NTUs.

3.3.3.2 Discharges to Impaired Water Body

For the purposes of the general permit, the CWA §303(d) impaired water bodies are those cited in the Final DEC 2014/2016 Integrated Report[2] or most current EPA approved version. If the permittee is discharging into a water body with an EPA-established or approved TMDL, the permittee must implement measures to ensure that the discharge of pollutants from the site is consistent with the assumptions and requirements of the EPA-established or approved TMDL, including ensuring that the

[2] DEC, *2014/2016 Integrated Water Quality Monitoring and Assessment Report – Alaska's List of Impaired or 303(d) listed waterbodies*. http://dec.alaska.gov/water/water-quality/integrated-report/ and the Alaska's Section 303(d) List of Impaired Waterbodies at http://dec.alaska.gov/water/water-quality/impaired-waters/.

discharge does not exceed specific wasteload or load allocation that has been established that would apply to the discharge. The permittee must also evaluate the recommendations in the Implementation Section of the TMDL and incorporate applicable measures into the operations.

3.4 Control Measures

3.4.1 Best Management Practices (BMPs)

BMPs are measures that are intended to prevent or minimize the generation and the potential for the release of pollutants to either land or waters of the U.S. All discharges of excavation dewatering are to be managed with appropriate BMPs to minimize environmental impact. The BMPs for land discharges of excavation dewatering would consist of basic erosion and sediment controls within the land disposal areas. Examples of BMPs for erosion control at the point of discharge would be velocity dissipation devices such as rock lined channels to reduce the erosive velocity of the water. Sediment controls such as rock check dams and other similar temporary constructed settling basins could be implemented to provide settling areas for sediment.

Specific BMPs such as temporary lined settling basins, filter bags, or other similar filtering and retention mechanisms are to be used to reduce sediment discharges to the land. The general permit allows permittees the flexibility to use these BMPs or similar devices as a means to control erosion at the discharge point and reduce sediment deposition within the land disposal area. Discharges from an excavation dewatering site within 1,500 feet of a "DEC-identified contaminated site or groundwater plume" will require additional information to be submitted about the contaminated site in accordance to Permit Part 2.8. The BMP plan must also provide a more detailed description of the land disposal area including soils and geology information to provide assurance that either discharges to the land or water will be managed appropriately to minimize the discharge of pollutants. Applicants will be required to submit their signed BMP plan with a completed NOI for all discharges that require NOI submittal in accordance with Permit Part 2.2.

3.5 Limitations, Inspections, and Monitoring Requirements

APDES regulations require that permits include monitoring to determine compliance with permit requirements (18 AAC 83.455). Monitoring may also be required to gather data for evaluation of future effluent limitations or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results to DEC.

3.5.1 Land Discharge Operations

The permit authorizes land discharges of excavation dewatering with the implementation of BMPs. The permit allows for the flexibility of BMPs to control erosion and sedimentation at the disposal area and also promote greater infiltration. The only monitoring required for all land discharges is a visual assessment for sheen and erosion at the point of discharge. The monitoring requirements for land discharges are found in Table 3 of the permit. Visual monitoring will ensure that BMPs are effective to reduce the sediment deposition in the infiltration area and that no petroleum products are discharged to the land surface. The visual monitoring is required on a daily basis along with documenting the estimated daily flow rate, all of which are to be recorded and kept on file in accordance to Permit Part 6.1.

Table 1: Effluent Monitoring Requirements for Land Disposal Discharges

Effluent Characteristic	Monitoring Location	Monitoring Frequency	Sample Type
Erosion	Point of Discharge	Daily	Visual
Sheen*	Effluent	Daily	Visual
Flow Rate	Effluent	Daily	24-hour Estimate or Measured
* Discharge shall be free of any visible sheen.			

3.5.2 **Surface Water Discharge Operations**

The permit requires effluent monitoring for all excavation dewatering discharges to waters of the U.S. Effluent limits were established for pH, settleable solids, TAqH, TAH, and turbidity. Effluent monitoring requirements listed in Table 4 of the permit consist of collecting all effluent samples prior to discharge to assure all water quality criteria are met. As a precautionary measure, all discharges shall be monitored for a daily visual sheen and a daily flow rate estimate. The monitoring for TAqH and TAH is only required if a visual sheen is observed, at which time the permittee ceases the discharge until corrective actions or treatment devices are implemented to prevent an oily sheen discharge. The required monitoring will provide assurance that the permittee will install BMPs or treatment that will provide protection of water quality.

(Table 2: Effluent Limits and Monitoring Requirements for Discharges to Waters of the U.S. is located on the following page)

Table 2: Effluent Limits and Monitoring Requirements for Discharges to Waters of the U.S.

Effluent Characteristic	Maximum Value	Monitoring Location	Monitoring Frequency	Sample Type	Sample Method
pH	6.5 – 8.5 SU [a]	Effluent Upstream	Before discharge and once per week	Grab	Field
Settleable Solids	0.2 ml/L above natural conditions	Effluent Upstream	Before discharge and once per week	Grab	Field (see note 11 to 18 AAC 70.020(b))
Sheen	No presence	Effluent	Daily	Grab	Visual
Total Aqueous Hydrocarbons (TAqH) [b, c]	15 µg/l	Effluent	Once a month	Grab	Lab (See note 7 to 18 AAC 70.020(b))
Total Aromatic Hydrocarbons (TAH) [b, c]	10 µg/l	Effluent	Once a month	Grab	Lab Method 602 (plus Xylenes) or EPA Method 624 (see note 7 to 18 AAC 70.020(b))
Total Flow	No Limit	Effluent	Daily	24 – Hour Estimate or Measured	Field
Turbidity (freshwater) No Mixing Zone	5 NTUs above natural conditions [d]	Effluent Upstream	Before discharge and once per week	Grab	Field
Turbidity (marine) No Mixing Zone	25 NTUs	Effluent	Before discharge and once per week	Grab	Field
Turbidity (freshwater) Mixing Zone [e]	5 NTUs above natural conditions	Effluent Upstream	Before discharge and once per week	Grab	Field
Turbidity (marine) Mixing Zone [e]	Report	Effluent and Upstream	Before discharge and once per week	Grab	Field
	Visual Monitoring [f]	Downstream			

Notes:

a. The effluent limit for pH shall be between 6.5 and 8.5 pH units or within 0.2 units (marine water), or 0.5 units (fresh water) of the receiving water pH at all times.

b. TAqH and TAH shall only be monitored if a visual sheen is detected in the daily visual monitoring. Upon detection of a sheen the permittee shall notify DEC in accordance with Part 3.1.6, a sample for TAqH and TAH shall be collected at the frequency in Table 2 for the duration of the discharge, and corrective actions or treatment devices implemented to prevent an oily sheen discharge.

c. Samples to determine concentrations of TAqH and TAH must be collected in marine and fresh waters below the surface and away from any observable sheen; concentrations of TAqH must be determined and summed using a combination of: (A) EPA Method 602 (plus xylenes) or EPA Method 624 to quantify monoaromatic hydrocarbons and to measure TAH; and (B) EPA Method 610 or EPA Method 625 to quantify polynuclear aromatic hydrocarbons listed in EPA Method 610; use of an alternative method requires department approval; the EPA methods referred to in this note may be found in Appendix A of 40 C.F.R. §136, Appendix A, as revised as of July 1, 2003 and adopted by reference.

d. If a mixing zone is not authorized, effluent turbidity shall not have more than a 10% increase in turbidity when the natural condition is more than 50 NTU, not to exceed a maximum increase of 15 NTU. Turbidity shall not exceed 5 NTU over natural conditions for all lake waters.

e. If a mixing zone is authorized: For freshwater, turbidity may not exceed 5 NTU above natural conditions 500 feet downstream of the discharge when the natural turbidity is 50 NTU or less. When the natural condition is greater than 50 NTU, turbidity shall not to exceed more than a 10% increase up to a maximum increase of 15 NTU above ambient conditions 500 feet downstream of the discharge. For lake waters, turbidity may not exceed 5 NTUs above natural turbidity 500 feet from the discharge point. Report effluent turbidity for information only. Turbidity concentration naturally present in the receiving water is determined at a location upstream of the mixing zone boundary and unaffected by the discharge of any dewatering activity.

f. See Permit Part 5.2.14.6 and 5.2.14.11 for visual monitoring requirements.

3.6 **Mixing Zone.**

Excavation dewatering is preferentially discharged to locations that do not have an open water surface (e.g., wetlands, tundra, dry river channels, frozen conditions) but are considered waters of the U.S. Vegetation naturally removes sediment prior to the discharge entering a receiving water. In the event that such a location is unavailable or discharges to a waterbody are unavoidable, settling ponds are often used to remove settable sediment prior to discharge. Still, settling ponds or other methods may not be able to achieve water quality criteria for turbidity and residues prior to discharge, and in limited instances project site footprint may restrict use of a settling pond. Accordingly, a mixing zone may be authorized for excavation dewatering discharges to meet water quality criteria over the short duration of the discharge event. The following sections discuss the authorization of mixing zones to marine and freshwater streams with sufficient dilution capacity to meet water quality criteria at the boundary of the mixing zone.

Mixing Zone Size Determination. In determining a mixing zone size, the Department has adopted the 500-foot mixing zone for excavation dewatering as was used in the development of the Statewide Oil and Gas Pipeline General Permit (AKG320000) for excavation dewatering activities, where extensive data was reviewed from placer mining dewatering operations that is similar to dewatering activities. In the Statewide Oil and Gas Pipeline general permit, the Department reviewed dewatering discharges from various activities and found that similar pretreatment practices and BMPs are used for excavation, gravel pit, and placer mine activities (i.e., settling ponds, coagulants, flocculants) and all are able to achieve similar effluent quality prior to discharge. The Department conducted a review of 154 mixing zones for turbidity from placer mines operating between 1997 and 2012. For discharges up to 200 gallons per minutes (gpm) to receiving waters of varying sizes and ambient turbidity conditions, 77 percent (%) of the receiving waters provided adequate dilution to support greater than 25 NTUs in the discharge, 43% supported greater than 50 NTU's, and 21% supported greater than 100 NTUs. Based on available DMR data, field reports, and institutional knowledge, the Department determined that an authorized 500-foot mixing zone appears to be an appropriate size that can consistently achieve turbidity water quality criteria when using settling ponds and other BMPs.

Mixing Zone Application and Review Process. The Permit is intended to cover various locations throughout the state; exact locations of potential discharges are not known until applications are received. Therefore, the Department uses empirical data from other statewide permits with mixing zones to inform application procedures. The application process requires a NOI, where an applicant provides any requested receiving water and discharge data in the mixing zone section of the form. The NOI is not a mixing zone application, per se. The information in the NOI is used to inform the Department if the request for a mixing zone is consistent with the mixing zone evaluation conducted during permit development. If consistent, then a mixing zone authorization may be approved.

The mixing zone section of the NOI form requires identification of any site-specific anadromous fish spawning or resident fish spawning redds for Arctic grayling, northern pike, rainbow trout, lake trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic (Dolly Varden) burbot, and landlocked coho, king, and sockeye salmon. This information must demonstrate mixing zones requested do not overlap with any of these spawning habitats [18 AAC 70.255(h)] or could have adverse impacts on these rearing and spawning habitats [18 AAC 70.250(a)(2)]. This demonstration may be achieved by consulting a variety of resources such as the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes*[3] and its associated *Atlas* or by requesting a site-specific determination through Alaska Department of Fish and Game (ADF&G).

Mixing zone requests require information that demonstrates compliance can be consistently achieved at the boundary of the mixing zone, regardless of seasonal or annual fluctuations. Mixing Zone Attachment

[3] See: www.adfg.alaska.gov/sf/SARR/AWC/

(Permit Attachment 1- NOI, Section 10.6) requires an applicant to demonstrate that a waterbody has sufficient assimilative capacity to meet water quality criteria at the boundary of a 500-foot mixing zone. Supporting data includes an estimate of ambient turbidity at the time of discharge, discharge flow rate, discharge volume, stream depth, width, and slope at the discharge location, and the low stream flow estimate using the seven-day low stream flow data based on a 10-year return period (7Q10) per 18 AAC 70.255(f)(2). If a discharge occurs seasonally, the 7Q10 can be estimated for the appropriate seasonal period. Low stream flow data could be obtained from applicant field investigations, gauge stations, or other method. Where 7Q10 or gauge data is unavailable, 18 AAC 70.255(f)(2) also includes references to acceptable alternative methods used to estimate the 7Q10.

Mixing zones may only be authorized by the Department after a review of all information demonstrates conditions for obtaining a mixing zone have been met. In locations where there is inadequate dilution for the discharge to meet water quality criteria or the waterbody is listed as impaired for sediment or turbidity in the *Alaska's Integrated Water Quality Monitoring and Assessment Report*[4], a mixing zone may not be authorized under the Permit. The Mixing Zone Analysis Checklist (Appendix C) outlines a comprehensive list of criteria that must be demonstrated when the Department analyzes and considers an applicant's request for a mixing zone. These criteria include treatment technology, appropriateness, and size of the mixing zone, threatened and endangered species, human consumption (drinking water intakes), spawning areas, human health, aquatic life, and wildlife. All criteria must be met in order to authorize a mixing zone [18 AAC 70.240 –270 (2003)]. The following sections summarize this analysis.

3.6.1 Size

Per 18 AAC 70.255, the Department has determined the mixing zone size for the discharge is appropriately sized based on extensive data collected from similar discharge activities in similar receiving waterbodies. Mixing zone applications accept stream flow data consistent with 18 AAC 70.255(f) to calculate dilution capacity and to determine that a stream has sufficient assimilative capacity for discharges from these activities to meet water quality criteria at the boundary of the mixing zone (Section 3.6). Based on the nature of pollutants anticipated to exceed water quality criteria within the boundary of the mixing zone (turbidity and residues), no lethality to passing organisms is expected. Aquatic life and human health are protected and the mixing zone is as small as practicable (see Section 3.6.4 and 3.6.6).

3.6.2 Treatment Technology

Per 18 AAC 70.240(a)(3), the Department must determine if "an effluent or substance will be treated to remove, reduce, and disperse pollutants, using methods found by the Department to be the most effective and technologically and economically feasible, consistent with the highest statutory and regulatory treatment requirements," before authorizing a mixing zone.

Applicable "highest statutory and regulatory requirements" are defined in 18 AAC 70.990(30) [2003]. Accordingly, there are three parts to the definition, which are:

- Any federal TBEL identified in 40 CFR 125.3 and 40 CFR 122.29, as amended through August 15, 1997, adopted by reference at 18 AAC 83.010;
- Minimum treatment standards in 18 AAC 72.040; and
- Any treatment requirement imposed under another state law that is more stringent than the requirement of this chapter.

The first part of the definition includes all applicable federal technology-based ELGs. There are no applicable ELGs for Excavation Dewatering.

[4] See: dec.alaska.gov/water/water-quality/impaired-waters/

The second part of the definition from the WQS appears to be in error, as 18 AAC 72.040 considers discharge of sewage to sewers and not minimum treatment. The correct reference appears to be 18 AAC 72.050, minimum treatment for domestic wastewater. This part of the definition does not apply because the Permit does not include mixing zones for domestic wastewater.

The third part of the definition includes any treatment required by state law that is more stringent than 18 AAC 70. Other regulations beyond 18 AAC 70 that may apply to this permitting action include 18 AAC 15, 18 AAC 72 and 18 AAC 83. The Permit imposes conditions, restrictions, and BMP requirements which are consistent with these regulations. In addition, neither the regulations in 18 AAC 15 nor another state legal requirement that the Department is aware of impose more stringent treatment requirements than 18 AAC 70 besides those in 18 AAC 72. Domestic and nondomestic wastewater treatment systems must comply with the most recent version of 18 AAC 72, including chemical or mechanical treatment mechanisms (e.g., flocculants, coagulants, and filtration systems) used for Excavation Dewatering to ensure methods are appropriate and effective as pollutant controls.

3.6.3 Existing Use

Per 18 AAC 70.245, the mixing zones have been appropriately sized to fully maintain and protect existing receiving water uses. In order to ensure the discharge neither partially nor completely eliminates existing uses of the waterbody as a fishery, the individual authorizations may imposes time-area prohibitions of discharges at a time or location that could preclude or limit established processing activities or commercial, sport, personal use, or subsistence fish or shellfish harvesting. The applicant is required to inform the Department of any time-area restrictions imposed by other agencies (i.e., ADF&G) during the NOI process. Discharge and receiving water monitoring upgradient and at the boundary of the mixing zone is required to ensure the biological integrity of waterbody is maintained and fully protected under the terms of the Permit per 18 AAC 70.245 (a)(1) and (a)(2).

3.6.4 Human Consumption

Per 18 AAC 70.250(b)(2) and (b)(3), the subject pollutants will not produce objectionable color, taste, or odor in aquatic resources harvested for human consumption, nor will the discharge preclude or limit established processing activities or commercial, sport, personal use, or subsistence fish and shellfish harvesting. Discharges from excavation dewatering do not contain pollutants that are expected to produce objectionable color, taste, or odor in aquatic resources. See Section 3.6.3 for time-area prohibitions to protect fishery uses.

3.6.5 Spawning Areas

Per 18 AAC 70.255(h), a mixing zone is not authorized in an area of anadromous fish spawning or resident fish spawning reds for Arctic grayling, northern pike, rainbow trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic char (Dolly Varden), burbot, and landlocked Coho, king, and sockeye salmon. Applicants must identify and document resident and anadromous fish water bodies relative to any mixing zone location requests and provide information about any juvenile or spawning habitat within those areas, as well as fish passage, migratory corridors, timing restrictions imposed by other agencies, and other receiving water characteristics. ADF&G involvement is recommended to ensure accuracy of the mixing zone application information provided. All mixing zones are protective for the fish and other aquatic life and receiving authorization for a mixing zone from the Department. A mixing zone may not be authorized in a known spawning area for anadromous fish or resident fish spawning redds.

3.6.6 Human Health

Per 18 AAC 70.250 and 18 AAC 70.255, the mixing zone shall be protective of human health and will not result in pollutants discharged at levels that will bioaccumulate, bioconcentrate, or persist above natural levels in sediments, water, or biota or at levels that otherwise will create a public health hazard

through encroachment on a water supply or contact recreation uses. As discussed in Section 3.6.4, pollutants discharged will not produce objectionable color, taste, or odor in aquatic resources harvested for human consumption. Furthermore, due to the time-area restriction around fishery lease areas, the pollutants discharged will not preclude or limit established processing activities of commercial, sport, personal-use, or subsistence fish and shellfish harvesting. An analysis of the wastewater characteristics of Excavation Dewatering indicate no direct or indirect human health concerns from discharges and established BMP controls, limitations, and monitoring are protective of human health.

3.6.7 Aquatic Life and Wild Life

Per 18 AAC 70.250(a)(2)(A-C), 18 AAC 70.250(b)(1), 18 AAC 70.255(g)(1) and (2), and 18 AAC 70.255(b)(1) and (2), pollutants for which the mixing zone will be authorized will not result in concentrations outside of the mixing zone that are undesirable, present a nuisance to aquatic life, permanent or irreparable displacement of indigenous organisms, or a reduction in fish or shellfish population levels. The temporary exceedance in turbidity and residues will not result in lethality to aquatic life or wild life. Therefore, no acute mixing zones are necessary (18 AAC 70.255). The mixing zones are determined using critical effluent and receiving water conditions and are as small as practicable. Receiving waters which do not have sufficient assimilative capacity and are unable to meet water quality criteria at the boundary of the mixing zone will not be authorized. Discharges from Excavation Dewatering will not include pollutants that pose risk to aquatic life and wildlife outside the boundary of the mixing zone. Department concludes authorized mixing zones are protective of aquatic life and wildlife.

3.6.8 Endangered Species

Per 18 AAC 70.250(a)(2)(D), the Department may not authorize a mixing zone that will cause an adverse effect on threatened or endangered species. Due to the nature of discharge, limitations, and controls imposed by the Permit, authorized mixing zones are unlikely to cause adverse effects to threatened or endangered species (Section 6.1). The NOI requires the permittee to inform the Department if any threatened or endangered species may be within the area of discharge or of any determinations or restrictions imposed by National Marine Fisheries Service (NFMS) and the U.S. Fish and Wildlife Service (FWS) at the project area. In the event threatened or endangered species are in the vicinity, the Department retains the ability to consult with the NFMS and the FWS and include additional site-specific requirements in the authorization (i.e. time-area restrictions) or to deny the mixing zone.

3.7 **Quality Assurance Project Plan**

The permittee must develop and implement a quality assurance project plan (QAPP) for all monitoring required by this permit for discharges to waters of the U.S. The QAPP must be developed and implemented in accordance with Permit Part 5.2.15. Any existing QAPP may be modified under this section.

3.8 **Reporting and Record Keeping**

Permit Part 6.0 contains recording and reporting requirements that are either based on standard regulatory language found in Appendix B or are specific to the general permit. The permit requires the permittee to maintain daily records, which must be kept for a period of three years after the termination of the discharge and made available upon request. Permit Part 6.2 requires permittee with a discharge to waters of the U.S. to submit their DMR with their Notice of Termination or if the project duration is greater than one year, to submit DMR not later than the 28th calendar day of the following month past the annual authorization issuance date (ex: authorization issued June 10, 2019, DMR due not later than July 28, 2020) to DEC Permitting Program address identified in Permit Appendix, Part 1.1.1. Specific report requirements are outlined under Permit Part 6.2. Additionally, Permit Appendix B, Part 3.4

(Twenty-four Hour Reporting) requires reports of any noncompliance event that may endanger health or the environment to be submitted orally within 24 hours after the permittee becomes aware of the circumstances and in writing within five days after the permittee becomes aware of the circumstances.

3.9 Terminating Coverage

3.9.1 Submitting a Notice of Termination

Permit Part 7.1 requires permittees should use either the electronic NOI system or the paper form to file Notices of Termination (NOT). A permittee shall submit an NOT within thirty days upon completion of the excavation dewatering project that received coverage through the submittal of an NOI in accordance with Permit Part 2.2. All required reports (DMR) and certifications are to have been submitted. DEC will review the NOT and will notify the permittee of the effective date of termination.

3.10 Standard Conditions

Appendix B of the permit contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

3.11 Permit Expiration

The permit will expire five years from the effective date of the permit.

4.0 ANTIBACKSLIDING

Per 18 AAC 83.480(a), except as provided in (b) of the section, "when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially and substantially changes since the permit was issued, and the change in circumstances would constitute cause for permit modification or revocation and reissuance under 18 AAC 83.135." The permit does not propose any interim effluent limitations nor is this reissuance based on cause established in 18 AAC 83.135. Accordingly, the provisions of 18 AAC 83.480(a) do not apply to this permitting action.

18 AAC 83.480(b) only applies to effluent limitations established on the basis of CWA Section 402(a)(1)(B), and modification of such limitations based on effluent guidelines that were issued under CWA Section 304(b). Accordingly, 18 AAC 83.480(b) applies to the relaxation previously established case-by-case TBELs developed using Best Professional Judgment (BPJ). To determine if the provisions of 18 AAC 83.480(b) can be applied, the regulation provides five regulatory criteria (18 AAC 83.480[b][1-5]) that DEC must evaluate. This permitting action does not propose the relaxation of any case-by-case TBELs developed by BPJ; therefore, there is not a need to conduct further analysis under this regulation.

Finally, the first sentence of 18 AAC 83.480(c) establishes that for a permit to which 18 AAC 83.480(b) applies, a permit "may not be renewed, reissued, or modified to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. As established in the preceding paragraph, 18 AAC 83.480(b) does not apply; therefore, no further analysis is required. The second sentence of 18 AAC 83.480(c) indicates that case-by-case TBELs developed by BPJ may not be renewed, issued, or modified to contain a less stringent effluent limitation if implementation of the less stringent limitation would result in a violation of WQS. This permitting action does not propose the relaxation of any case-by-case TBELs developed by BPJ; therefore, there is no need to conduct further analysis under this regulation.

5.0 ANTIDEGRADATION

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the waterbody's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy and implementation methods. Alaska's current Antidegradation Policy and implementation methods are presented in 18 AAC 70.015 *Antidegradation policy* (Policy) and in 18 AAC 70.016 *Antidegradation implementation methods for discharges authorized under the federal Clean Water Act* (Implementation Methods). The Policy and Implementation Methods amended through April 6, 2018 are consistent with 40 CFR 131.12; and were approved by EPA on July 26, 2018.

The following subsections document the Department's conformance with the Policy and Implementation Methods for reissuance of the Permit.

5.1 Receiving Water Status, Tier Determination, and Analysis Requirements

Alaska's antidegradation policy (through 18 AAC 70.015(a)(1)-(3)) identifies three tiers of water quality and water quality protections, Tiers 1, 2, and 3 respectively. An antidegradation analysis is tier-specific. Using the Policy and corresponding Implementation Methods, the Department determines a Tier 1 or Tier 2 classification and protection level on a parameter by parameter basis. A Tier 3 protection level would apply to a designated waterbody or segment.

- Tier 1 requires existing water uses and the level of water quality necessary to protect existing uses be maintained and protected. Tier 1 applies to all waters of the U.S. in the state. If criteria are exceeded for a water quality parameter (and the receiving water is not a Tier 3 water), then Tier 1 is the only protection level. This can be due to naturally occurring constituents in the water or can be due to pollutants introduced by humans.
- Tier 2 applies when the water quality for a parameter does not exceed the applicable criteria, and is presumed to apply as the default protection level for all parameters in all waters in Alaska unless found otherwise.
- Tier 3 applies to designated waters and no lowering of the water quality is allowable unless temporary and limited. At this time, no Tier 3 waters have been designated in Alaska.

Tier 1 protection applies to all waters of the U.S. in the state, the analysis must be conducted with implementation procedures in 18 AAC 70.016(b)(5). For Tier 2 protection level the analysis is performed on a parameter by parameter basis consistent with 18 AAC 70.016(c)(1) and 18 AAC 70.015(a)(2) that states if the quality of water exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water, that quality must be maintained and protected, unless the Department authorizes a reduction in water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240 or another purpose as authorized in a department permit, certification, or approval. Lastly, because the antidegradation analysis is for a general permit, 18 AAC 70.016(e) also applies.

5.2 Tier 1 Analysis of Existing Use Protection

The summary below presents the Department's analyses and findings for the Tier 1 analysis of existing use protections per 18 AAC 70.016(b)(5) finding that:

(A) existing uses and the water quality necessary for protection of existing uses have been identified based on available evidence, including water quality and use related data, information submitted by the applicant, and water quality and use related data and information received during public comment;

(B) existing uses will be maintained and protected, and

(C) *the discharge will not cause water quality to be lowered further where the department finds that the parameter already exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b).*

For the purpose of this analysis, the Department classifies the impaired water bodies (Categories 4 or 5) in *Alaska's Final 2014/2016 Integrated Water Quality Monitoring and Assessment Report*) as Tier 1 for the parameters causing the impairment. Compliance with permit conditions will limit discharges to those water bodies listed as impaired. As a result, water quality in those water bodies is likely to improve subject to compliance with permit conditions. Accordingly, DEC finds that the existing uses in those water bodies designated as Tier 1 for the parameters they are impaired for will be maintained and protected. The remainder of this antidegradation analysis conservatively assumes that all other waters are Tier 2 waters, which provides for the next highest level of protection.

5.3 Tier 2 Analysis for Lowering Water Quality

Scope of Tier 2 Analysis. Per 18 AAC 70.016(c)(2), an antidegradation analysis is only required for those waterbodies needing Tier 2 protection and which have any new or existing discharges that are being expanded based on permitted increases in loading, concentration, or other changes in effluent characteristics that could result in comparative lower water quality or pose new adverse environmental impacts. Per 18 AAC 70.016(c)(2)(A), the analysis will only be conducted for the portion of the discharge that represents an increase from the existing authorized discharge. Additionally, per 18 AAC 70.016(c)(3), DEC is not required to conduct an antidegradation analysis for a discharge that is not expanding.

Per 18 AAC 70.990(75), "new or expanded" with respect to discharges means discharges that are regulated for the first time or discharges that are expanded such that they could result in an increase in pollutant load or concentration or other discharge characteristics that could lower water quality or have other adverse environmental impacts.

In the context of the permit, there are no increases in permitted loads or concentration to existing, previously regulated discharges other than turbidity and settable solids (residues) as proposed with inclusion of the standard mixing zone (18 AAC 70.240, Permit Part 5.2.14). Therefore, for Tier 2 protection, the analysis must comply with 18 AAC 70.016(c)(7)(A-F). Lastly, the analysis and associated finding are summarized below.

Tier 2 Analysis.

Per Antidegradation Policy and Implementation Methods 18 AAC 70.016(c)(7)(A-F) stipulates that after review of available evidence, the department finds that the proposed discharge will lower water quality in the receiving water, the department will not authorize a discharge unless the department finds that

- 18 AAC 70.016(c)(7) (A) the reduction of water quality of water exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water, that quality must be maintained and protected, and not violate water the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235, or whole effluent toxicity limit in 18 AAC 70.235, unless the Department authorizes a reduction in water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, or a mixing zone under 18 AAC 70.240.

The Permit limits and conditions ensure water quality criteria are not violated in the receiving waterbody. The Permit includes limits that are based on meeting water quality criteria at the point of discharge or at the boundary of an authorized mixing zone. Per 18 AAC 70.240, the Department has authorized a 500-foot mixing zone for turbidity and residues for discharges that have the potential to exceed the water quality criteria at the point of discharge. All applicable water quality criteria, regardless of monitoring frequency reductions, will be met at the boundary of the authorized mixing zone. If a mixing zone is not requested or approved, the discharge must meet water quality criteria at the point of discharge along with all other water quality parameters authorized to be discharged by the

Permit. There are no increases in permitted loads or concentrations to existing, previously regulated discharges, and all of the other limitations have stayed the same in the Permit. The Department has determined this finding is satisfied.

- 18 AAC 70.016(c)(7) (B) each requirement under 18 AAC 70.016(b)(5) for a discharge to a Tier 1 water is met:

As discussed in the preceding Tier 1 analysis, the waters within a project site are protected for all uses. Hence, this finding is satisfied.

- 18 AAC 70.016(c)(7) (C) point source and state-regulated nonpoint source discharges to the receiving water will meet requirements under 18 AAC 70.015(a)(2)(D) where all wastes and other substances discharged will be treated and controlled to achieve (i) for new and existing point sources, the highest statutory and regulatory requirements, and (ii) for non-point sources, all cost-effective and reasonable best management practices the most effective and reasonable methods of pollution prevention control and treatment will be applied to all wastes and other substances to be discharged. To make this finding the department will
    - Identify point sources and state-regulated nonpoint sources that discharge to, or otherwise impact the receiving water;
    - Consider whether there are outstanding noncompliance issues with other point source permits or required state-regulated nonpoint source best management practices, consider whether receiving water quality has improved or degraded over time, and if necessary and appropriate, take actions that will achieve the requirements of 18 AAC 70.015(a)(2)(D); and
    - Coordinate with other state and federal agencies as necessary.

The Permit is intended to cover various locations throughout the state where exact locations of potential discharges are not known until applications are received. The application process requires a NOI, where the applicant provides any requested receiving water and discharge data in the mixing zone and requires identification of any site-specific anadromous fish spawning or resident fish spawning redds. Mixing zones for turbidity and residues may only be authorized by the Department after a review of all information demonstrates conditions for obtaining a mixing zone have been met. In locations where there is inadequate dilution for the discharge to meet water quality criteria or the waterbody is listed as impaired for sediment or turbidity in the latest EPA approved Alaska Integrated Water Quality Monitoring and Assessment Report, a mixing zone may not be authorized under the permit. The Mixing Zone Analysis Checklist (Appendix C) outlines a comprehensive list of criteria that must be demonstrated when the Department analyzes and considers an applicant's request for a mixing zone. These criteria include treatment technology, appropriateness, and size of the mixing zone, threatened and endangered species, human consumption (drinking water intakes), spawning areas, human health, aquatic life, and wildlife. All criteria must be met in order to authorize a mixing zone [18 AAC 70.240 – 270 (2003)].

The general permit implements WQBELs for all parameters expected to be potentially present in excavation dewatering discharges to protect existing water quality. Since TBELS have not been developed for dewatering related discharges, the most stringent water quality criteria for applicable parameters were selected as final permit limits. If pollutant concentrations have the potential to exceed an effluent limit, treatment may be necessary such as temporary settling basins, sediment filters, weir tanks, or similar filtering mechanisms.

The permit specifies that BMPs be implemented (e.g., temporary settling basins, filter bags, and similar filtering and retention mechanisms) for discharges. Discharges will be required to use various BMPs to ensure the discharges do not result in erosion of existing features. BMPs commonly used in the construction industry to control erosion and sedimentation can be implemented to manage dewatering

discharges. The requirement to implement BMPs to manage and the establishment of WQBELs will ensure that all effective and reasonable methods will be utilized to meet the permit requirements.

The Department has determined the methods of prevention, control, and treatment in the permit to be most effective and reasonable, which will be applied to all wastes and other substances to be discharged, therefore, 18 AAC 70.015(a)(2)(D) is satisfied.

- 18 AAC 70.016(c)(7) (D) the alternatives analysis provided demonstrates that (i) a lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary; when one or more practicable alternatives that would prevent or lessen the degradation associated with the proposed discharge are identified, the department will select one of the alternatives for implementation; and (ii) the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are found by the department to be the most effective and practicable;

Excavation dewatering mixing zones are allowed and other typical sedimentation best management practices are considered per project. Enhanced treatment using coagulants and flocculants can also be adopted upon review and approval by DEC in the project application and BMP plan. The use of appropriate treatment BMPs ensures compliance with water quality criteria at the boundary of an authorized mixing zone or at the point of discharge if no mixing zone is requested or approved. The combinations available to the permittee to conduct pollution prevention BMPs to limit impacts and adoption of treatment systems provides a flexible and effective means to control pollution to be the most effective and practicable, therefore the finding is satisfied.

- 18 AAC 70.016(c)(7) (E) except if not required under (4)(F) of this subsection, the social or economic importance analysis provided under (4)(G) and (5) of this subsection demonstrates that a lowering of water quality accommodates important social or economic development under 18 AAC 70.015(a)(2)(A); and

The Alaskan economy in general, and the construction industry in particular, provide economic and social benefits from construction activities that might affect water quality. The general permit authorizes the discharge of excavation dewatering that is often associated with construction activity. As areas undergo commercial and residential development, new utilities including water, sewer, and natural gas lines are installed that often require excavation dewatering to facilitate construction. A large portion of Alaska contains permafrost and poorly drained silty soils, where excavation in these areas will often require some form of dewatering. The authorization of various excavation dewatering discharges associated with construction activity is critical to the continued economic development of the state through the creation of jobs, generation of tax revenue, and transmission and delivery of goods. The Department has determined that the lowering of water quality is necessary to accommodate important economic and social development in the area where the waters are located under 18 AAC 70.015(a)(2)(A) is satisfied.

- 18 AAC 70.016(c)(7) (F) 18 AAC 70.015 and this section have been applied consistent with 33 U.S.C. 1326 (CWA §316) with regard to potential thermal discharge impairments.

Discharges authorized under the permit are not associated with a potential thermal discharge impairment; therefore, the finding is not applicable.

6.0 OTHER LEGAL REQUIREMENTS

6.1 Endangered Species Act

The National Marine Fisheries Service (NMFS) is responsible for administration of the Endangered Species Act (ESA) for listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, and sea otters) are administered by

the U.S. Fish and Wildlife Service (USFWS). Section 7 of the ESA requires federal agencies to consult with NMFS and USFWS (collectively referred to as the Services) if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with the Services regarding permitting actions. However, the Department values input from the Services and solicits comments from them on issuance of the permit.

6.2 **Essential Fish Habitat**

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) designates Essential Fish Habitat (EFH) in waters used by anadromous salmon and various life stages of marine fish under NMFS jurisdiction. EFH refers to those waters and associated river bottom substrates necessary for fish spawning, breeding, feeding, or growth to maturity –including aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish. Spawning, breeding, feeding, or growth to maturity covers a species' full life cycle necessary for fish from commercially-fished species to spawn, breed, feed, or grow to maturity.

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Section 305(b) of the Magnuson-Stevens Act 916 USC 1855(b)) requires federal agencies to consult the NMFS when any activity proposed to be permitted, funded, or undertaken by a federal agency may have an adverse effect on designated EFH as defined by the Act. As a state agency, DEC is not required to consult with NMFS regarding permitting actions, but interacts voluntarily with NMFS to identify EFH.

To protect EFH the permit Part 2.2.9.1 requires the permittee to contact ADF&G Office of Habitat for all discharges to fish bearing waterbodies.

7.0 REFERENCES

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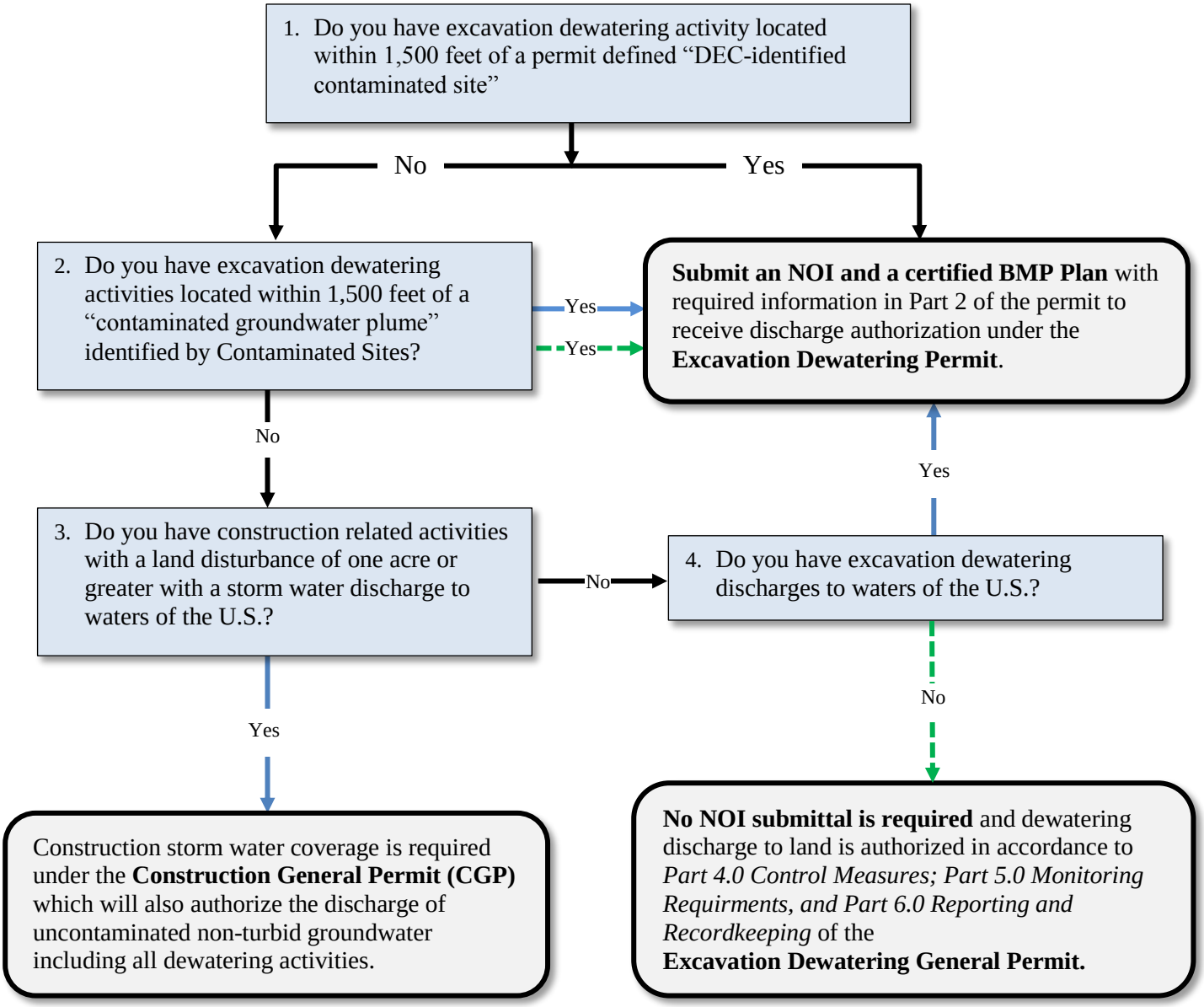
APPENDIX A. NOI SUBMITTAL REQUIREMENT FLOW CHART



Discharge to:
- Land
- waters of the U.S.

* A contaminated site or groundwater plume with an "Active" or "Cleanup Complete-Institutional Controls" status identified by DEC Contaminated Sites Program. For assistance in locating mapped contaminated sites or listing of groundwater plumes, see http://dec.alaska.gov/water/wastewater/stormwater/dewater-hydrostatic/

APPENDIX B. BASIS FOR EFFLUENT LIMITATIONS

B.1 Land discharges:

B.1.1 Best Management Practices

The Alaska Department of Environmental Conservation (DEC) determined that the implementation of BMPs that control erosion, sediment, and promote greater infiltration are the most effective and reasonable pollution control practices for land discharges.

B.2 Discharges to Surface Water:

B.2.1 Technology Based Effluent Limits (TBELs)

The Clean Water Act (CWA) requires permittees in industrial sectors to comply with effluent limitation guidelines (ELG) based on available wastewater treatment technology for those sectors EPA has promulgated ELGs. EPA has not promulgated technology-based ELGs for excavation dewatering discharges, so no TBELs have been incorporated into the permit.

B.2.2 Water Quality Based Effluent Limits (WQBELs) for Excavation Dewatering

The CWA requires the imposition of ". . . any more stringent limitation, including those necessary to meet water quality standards, . . . or required to implement any applicable water quality standard established pursuant to this Act" by July 1, 1977 [Section 301(b)(1)(c)]. All discharges to state waters must comply with State water quality standards (WQS), including the State's antidegradation policy.

Alaska Pollutant Discharge Elimination System (APDES) regulations require that permits include conditions necessary to "achieve water quality standards established under 33 U.S.C. 1313, including state narrative criteria for water quality" [18 AAC 83.435(a)(1)].

DEC has concluded, based on application of the WQS and review of available sampling data, that the following pollutants that are commonly found in excavation dewatering must be limited in order to meet the State WQS.

B.2.2.1 *pH*

The most stringent pH water quality criterion for freshwater is 6.5 to 8.5 S.U. and within 0.5 S.U. from natural conditions which is protective of the aquaculture water supply designated use. The most stringent pH criterion for marine discharges is the same but within 0.2 S.U. from natural conditions and is also protective of the aquaculture water supply designated use.

B.2.2.2 *Settleable Solids*

The concentration of settleable solids in wastewater discharged from excavation dewatering must not exceed 0.2 ml/L above natural conditions. (Permit Part 2.2.1.3). The concentration of 0.2 ml/L was taken from the fresh water sediment water quality criterion for the drinking water supply designated use which states there should be no measurable increase in the concentration of settleable solids above natural conditions. Using best professional judgment an increase of 0.2 ml/L is the smallest incremental rise that can accurately be measured. The marine water sediment water quality criterion for the contact recreation designated use also states there should be no measurable increase in the concentration of settleable solids above natural conditions.

B.2.2.3 ***TAqH***

The most stringent water quality criteria for petroleum hydrocarbons for both fresh water and marine water is the narrative criteria which states the discharge shall not cause a sheen. The numeric water quality criterion for TAqH is 15 µg/L, which is protective of the aquaculture water supply use in both fresh and marine water.

B.2.2.4 ***TAH***

The most stringent water quality criteria for petroleum hydrocarbons for both fresh water and marine water is the narrative criteria which states the discharge shall not cause a sheen. The numeric water quality criterion for TAH is 10 µg/L, which is protective of the aquaculture water supply use in both fresh water and marine water.

B.2.2.5 ***Turbidity***

The most restrictive turbidity criterion applies to fresh water sources classified for water contact recreation uses. This criterion [18 AAC 70.020(b)(12)(B)(i)] states that turbidity "May not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU." The criterion for Water Supply, Drinking, Culinary and Food Processing [18 AAC 70.020(1)(A)(i)] is identical except that the maximum increase is 25 NTU.

The adoption of the aquaculture water supply water quality criterion of 25 NTUs is the most stringent marine water quality standard for turbidity. Through the establishment of a WQBEL of 25 NTUs for any marine water discharge all marine water designated uses will be protected. This effluent limit for marine water discharges is also consistent with the turbidity limit set for both hydrostatic and excavation dewatering discharges in the North Slope Oil and Gas Exploration general permit.

APPENDIX C. MIXING ZONE CHECKLIST

Mixing Zone Authorization Checklist
based on Alaska Water Quality Standards (2003)

The purpose of the Mixing Zone Checklist is to guide the permit writer through the mixing zone regulatory requirements to determine if all the mixing zone criteria at 18 AAC 70.240 through 18 AAC 70.270 are satisfied, as well as provide justification to authorize a mixing zone in an APDES permit. In order to authorize a mixing zone, all criteria must be met. The permit writer must document all conclusions in the Permit Fact Sheet, however, if the permit writer determines that one criterion cannot be met, then a mixing zone is prohibited, and the permit writer need not include in the Fact Sheet the conclusions for when other criteria were met.

Criteria	Description	Answer & Resources	Regulation
Size	Is the mixing zone as small as practicable? Permit writer conducts analysis and documents analysis in Fact Sheet at: • Section 3.6 Mixing Zone Analysis.	Yes, mixing zone as small as practicable. Technical Support Document for Water Quality Based Toxics Control • Fact Sheet 3.6.1 • DEC's RPA Guidance • EPA Permit Writers' Manual	18 AAC 70.240(a)(2) 18 AAC 70.245(b)(1) – (b)(7) 18 AAC 70.255(e)(3) 18 AAC 70.255(d)
Technology	Were the most effective technological and economical methods used to disperse, treat, remove, and reduce pollutants? **If yes**, describe methods used in Fact Sheet at Section 3.6 Mixing Zone Analysis	Answer: Yes Fact Sheet, Section 3.6.2	18 AAC 70.240(a)(3)
Low Flow Design	**For river, streams, and other flowing fresh waters.** Determine low flow calculations or documentation for the applicable parameters. Justify in Fact Sheet	Fact Sheet 3.6 Mixing Zone Application and Review Process	18 AAC 70.255(f)

Criteria	Description	Answer & Resources	Regulation
Existing Use	Does the mixing zone…		
	(1) partially or completely eliminate an existing use of the water body outside the mixing zone? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.3	18 AAC 70.245(a)(1)
	(2) impair overall biological integrity of the water body? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Sections 3.6.1 and 3.6.3	18 AAC 70.245(a)(2)
	(3) provide for adequate flushing of the water body to ensure full protection of uses of the water body outside the proposed mixing zone? **If no, then mixing zone prohibited.**	Answer: Yes Fact Sheet Section 3.6.3	18 AAC 70.250(a)(3)
	(4) cause an environmental effect or damage to the ecosystem that the department considers to be so adverse that a mixing zone is not appropriate? **If yes, then mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.7	18 AAC 70.250(a)(4)
Human Consumption	Does the mixing zone…		
	(1) produce objectionable color, taste, or odor in aquatic resources harvested for human consumption? **If yes, mixing zone may be reduced in size or prohibited.**	Answer: No Fact Sheet Section 3.6.4	18 AAC 70.250(b)(2)
	(2) preclude or limit established processing activities of commercial, sport, personal use, or subsistence shellfish harvesting? **If yes, mixing zone may be reduced in size or prohibited.**	Answer: No Fact Sheet Section 3.6.4	18 AAC 70.250(b)(3)
Spawning Areas	Does the mixing zone…		
	(1) discharge in a spawning area for anadromous fish or Arctic grayling, northern pike, rainbow trout, lake trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic char (Dolly Varden), burbot, and landlocked coho, king, and sockeye salmon? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.5	18 AAC 70.255(h)

Criteria	Description	Answer & Resources	Regulation
Human Health	Does the mixing zone…		
	(1) contain bioaccumulating, bioconcentrating, or persistent chemical above natural or significantly adverse levels? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Sections 3.6.6 and 3.6.1	18 AAC 70.250(a)(1)
	(2) contain chemicals expected to cause carcinogenic, mutagenic, tetragenic, or otherwise harmful effects to human health? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.1	
	(3) Create a public health hazard through encroachment on water supply or through contact recreation? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.6	18 AAC 70.250(a)(1)(C)
	(4) meet human health and aquatic life quality criteria at the boundary of the mixing zone? **If no, mixing zone prohibited.**	Answer: Yes Fact Sheet Section 3.6.1, 3.6.6, and 3.6.7	18 AAC 70.255(b), (c)
	(5) occur in a location where the department determines that a public health hazard reasonably could be expected? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.6	18 AAC 70.255(e)(3)(B)
Aquatic Life	Does the mixing zone…		
	(1) create a significant adverse effect to anadromous, resident, or shellfish spawning or rearing? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.5	18 AAC 70.250(a)(2)(A-C)
	(2) form a barrier to migratory species? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.5	
	(3) fail to provide a zone of passage? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.5	
	(4) result in undesirable or nuisance aquatic life? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.7	18 AAC 70.255(b)(1)
	(5) result in permanent or irreparable displacement of indigenous organisms? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.7	18 AAC 70.255(g)(1)

Criteria	Description	Answer & Resources	Regulation
	(6) result in a reduction in fish or shellfish population levels? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.7	18 AAC 70.255(g)(2)
	(7) prevent lethality to passing organisms by reducing the size of the acute zone? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Sections 3.6.2 and 3.6.7	18 AAC 70.255(b)(1)
	(8) cause a toxic effect in the water column, sediments, or biota outside the boundaries of the mixing zone? **If yes, mixing zone prohibited.**	Answer: No Fact Sheet Section 3.6.7	18 AAC 70.255(b)(2)
Endangered Species	Are there threatened or endangered species (T/E spp) at the location of the mixing zone? If yes, are there likely to be adverse effects to T/E spp based on comments received from USFWS or NOAA? If yes, will conservation measures be included in the permit to avoid adverse effects? **If yes, explain conservation measures in Fact Sheet. If no, mixing zone prohibited.**	Answer: Yes Fact Sheet Section 3.6.8 and Fact Sheet Section 6.0	Program Description, 6.4.1 #5 18 AAC 70.250(a)(2)(D)